

REMARKS

Claims 35, 45 and 55 have been amended. Claim 41 has been cancelled. Claims 66-68 have been added. Claims 35-40, 42-48, 55, 57-59 and 66-68 are pending. Applicant reserves the right to pursue the original claims and other claims in this and in other applications.

Claims 45-48, 55 and 57-59 stand rejected under 35 U.S.C. § 112, first paragraph, as failing to comply with the written description requirement. Applicant respectfully traverses the rejection.

Claim 45 has been amended to overcome the rejection and is allowable. Claims 46-48 are dependent from claim 45 and are likewise allowable.

Claim 55 recites a conditioning apparatus comprising, in part, "said system further comprises a drive system for moving said conditioning device in a direction of said axis" about which the roller segments are rotatable.

The Office Action contends that this limitation is new matter. (Office Action, p.2). Applicant respectfully disagrees. The specification discloses that a "translational drive system 122 may be used to move the conditioning device 62 laterally to and fro (in the direction of the rotation axis 120) during the conditioning process." (¶ [0042]; axial direction movement arrows in FIG. 3). Therefore, Applicant respectfully requests the rejection of independent claim 55 and dependent claims 57-59 be withdrawn and the claims allowed.

Claims 35, 36, 40-45 and 47-48 stand rejected under 35 U.S.C. § 102(e) as being anticipated by U.S. Patent No. 5,775,983 ("Shendon"). Applicant respectfully traverses the rejection.

Claim 35 recites a conditioning device comprising "roller segments rotatable about an axis for conditioning respective surface portions of a glazed polishing surface, said segments being rotatable at different speeds relative to said respective surface portions; and a system for moving said rotatable roller segments in a direction of said axis relative to said glazed polishing surface and for moving said glazed polishing surface relative to said roller segments at a predetermined rate."

Shendon is directed to an apparatus and method for conditioning a polishing pad for use in a polishing apparatus. (Shendon, col. 1, lines 8-11). The Shendon apparatus includes a conditioning tool 100 disposed over the rotating polishing pad 603 and platen 605 to condition a surface 601 of the polishing pad 603. (Shendon, col. 3, line 66 to col. 4, line 10). The tool 100 includes rollers 102, 104 which provide a cylindrical conditioning surface. (Shendon, col. 4, lines 10-17). The rollers 102, 104 are held in place by a pivot shaft 401 fitted through two pivot plates 506 attached to a horizontal cross plate 508; the cross plate 508 is attached to a guide bar 512. (Shendon, col. 6, lines 20-27). In the Shendon device, the pad 603 and roller may be rotated. (Shendon, col. 6, lines 44-50). However, the rollers cannot be moved in an axial direction. In contrast, the translational drive system 122 may be used to move the conditioning device 62 laterally to and fro (in the direction of the rotation axis) during the conditioning process. (§ [0042]). Thus, Shendon does not disclose, teach or suggest "roller segments rotatable about an axis for conditioning respective surface portions of a glazed polishing surface, said segments being rotatable at different speeds relative to said respective surface portions; and a system for moving said

rotatable roller segments in a direction of said axis relative to said glazed polishing surface and for moving said glazed polishing surface relative to said roller segments at a predetermined rate.” Applicant respectfully submits that the 35 U.S.C. § 102(e) rejection of independent claim 35 and dependent claims 36, 40, 42-44 be withdrawn and the claims allowed.

Claims 37 and 38 stand rejected under 35 U.S.C. § 103(a) as being unpatentable over Shendon. Applicant respectfully traverses the rejection.

Claims 37 and 38 depend from claim 35 and therefore, recite a conditioning device comprising, in part, “roller segments rotatable about an axis for conditioning respective surface portions of a glazed polishing surface, said segments being rotatable at different speeds relative to said respective surface portions; and a system for moving said rotatable roller segments in a direction of said axis relative to said glazed polishing surface and for moving said glazed polishing surface relative to said roller segments at a predetermined rate.”

As mentioned earlier, Shendon does not teach or suggest all of the limitations of claim 35. Therefore, Applicant respectfully submits that the rejection be withdrawn and the claims allowed.

Claim 39 stands rejected under 35 U.S.C. § 103(a) as being unpatentable over Shendon in view of U.S. Patent No. 6,086,460 (“Labunsky”). Applicant respectfully traverses the rejection.

Claim 39 depends from claim 35 and therefore, recites a conditioning device comprising, in part, “roller segments rotatable about an axis for conditioning respective

surface portions of a glazed polishing surface, said segments being rotatable at different speeds relative to said respective surface portions; and a system for moving said rotatable roller segments in a direction of said axis relative to said glazed polishing surface and for moving said glazed polishing surface relative to said roller segments at a predetermined rate.”

Shendon does not teach or suggest all of the limitations of claim 35. The Office Action relies on Labunsky as teaching conditioning a polishing web with a cylindrical roller that is driven by a motor. (Office Action, p. 4). This teaching, however, does not cure the deficiencies of Shendon. Because the references, individually or in combination, do not teach or suggest all of the limitations of claim 39, Applicant respectfully submits that the rejection be withdrawn and the claim allowed.

Claims 46, 55 and 57-59 stand rejected under 35 U.S.C. § 103(a) as being unpatentable over Shendon in view of U.S. Patent No. 6,139,404 (“Yau”). Applicant respectfully traverses the rejection.

Claim 46 depends from claim 45 and recites a conditioning device comprising, in part, “cylindrical roller segments rotatable about an axis for conditioning respective portions of a glazed polishing surface; means for rotating said cylindrical roller segments; and a system for moving said cylindrical roller segments relative to said glazed polishing surface during a conditioning process, wherein said conditioning device is adjustable in a direction of said axis in response to measurements of surface characteristics of work pieces.”

Shendon does not teach or suggest a conditioning device that is adjustable in a direction axially of the roller segments. The Office Action concedes that Shendon does not disclose that the rollers move longitudinally with respect to the polishing web. (Office Action, p.5). Yau is directed to a semiconductor wafer processing apparatus having a polishing pad and a polishing pad conditioner. (Yau, Abstract; col. 1, lines 10-13). The Yau apparatus includes a support structure 42, a rotatable table 43 with a wafer polishing pad 44, a wafer carrier 46 and a wafer polishing pad conditioner 48. (Yau, col. 3, lines 34-38). Although Yau does not explicitly disclose a longitudinal movement of the roller 68 with respect to the surface 80 of the polishing pad 44, direction 82 in which the roller 68 sweeps over the polishing pad 44 is perhaps longitudinal. (Yau, Figure 9). The Office Action relies on Yau as teaching "conditioning a polishing web with a cylindrical roller that is driven by a motor and capable of longitudinal movement." (Office Action, p.5). Yau, however, does not teach or suggest moving the roller in an axial direction and thus, does not cure the deficiencies of Shendon. Because the references, individually or in combination, do not teach or suggest all of the limitations of claim 46, Applicant respectfully submits that the rejection be withdrawn and the claim allowed.

Claim 55 recites a conditioning apparatus comprising "a conditioning device for simultaneously applying different conditioning treatments to the surface of a polishing pad; and a rotatable support system for providing relative rotation between said conditioning device and the polishing pad, wherein said conditioning device comprises roller segments rotatable about an axis, and said system further comprises a drive system for moving said conditioning device in a direction of said axis of said roller segments during conditioning."

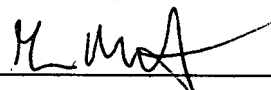
As mentioned earlier, neither Shendon nor Yau teach or suggest moving a conditioning device in an axial direction of the roller segments. Particularly, the references do not teach or suggest "said conditioning device comprises roller segments rotatable about an axis, and said system further comprises a drive system for moving said conditioning device in a direction of said axis of said roller segments during conditioning." Therefore, Applicant respectfully submits that the rejection of independent claim 55 and dependent claims 57-59 be withdrawn and the claims allowed.

New claims 66-68 are allowable for at least the reasons mentioned above.

In view of the above, Applicant believes the pending application is in condition for allowance.

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Respectfully submitted,

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